



What is Hazardous Waste?

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Many manufacturing and service processes produce hazardous waste. For example, hazardous waste can be produced while manufacturing watches, furniture, tennis shoes, sewing needles, burial caskets and cameras and during drycleaning, laboratory research, typesetting, fabric dyeing, automobile repairs and other repair services.

The U.S. Environmental Protection Agency (EPA) estimates that each year American industries produce 197 million tons of hazardous waste.

What Is Waste?

Under the Wisconsin Statutes, waste is anything that can no longer be used for its originally intended purpose. Perhaps it's been used in some process or become contaminated. Sometimes material still useable for its original purpose is considered a waste when it's discarded.

When is it Hazardous?

Waste is hazardous if it is specifically listed by the Wisconsin Department of Natural Resources as hazardous, or if it displays any of the four hazardous waste characteristics: ignitability, corrosivity, reactivity, or toxicity (containing heavy metals or organics).

Listed Hazardous Waste

Listed hazardous wastes are found in Tables II, III, IV, and V of Wisconsin Administrative Code section NR 605.09.

Table II: Hazardous Waste From Non-Specific Sources

These wastes are produced by non-specific processes. They include materials that have been contaminated through use, to a point where they can no longer be used for their originally intended purpose. For example, many solvents used to clean oil, grease and dirt from metal parts are listed as hazardous waste from non-specific sources.

Table III: Hazardous Waste From Specific Sources

Specific manufacturing processes produce these wastes, such as the manufacturing of many pesticides, organic chemicals and even veterinary pharmaceuticals.

Table IV: Acute Hazardous Commercial Chemical Products and Manufacturing Chemical Intermediates

Chemicals listed in this table are unused chemicals considered acutely hazardous when they are discarded. These wastes are considered acutely hazardous because they can be extremely dangerous to human and environmental health with even short term exposure or in very small doses. Examples include certain cyanides, arsenic compounds, and several strong pesticides.

Table V: Toxic Commercial Chemical Products and Manufacturing Chemical Intermediates

Substances listed in this table are unused chemicals that can be hazardous when discarded. Although these toxic chemicals are very dangerous to human and environmental health, in small doses, they may not be as dangerous as acutely hazardous waste. The health risk of toxic hazardous waste may be based on the substances' persistence, potential for migrating through the environment and other characteristics such as their quantity and concentration. Table V includes substances such as benzene, a chemical known to cause cancer.

To determine if your waste is a listed hazardous waste, carefully review the processes that produced the waste. Compare these processes and the wastes they produce with the wastes listed in NR 605.09.

Characteristic Hazardous Waste

Wastes not included in Tables II, III, IV and V may still be hazardous if they exhibit any of the four hazardous waste characteristics. These characteristics are specified in Wisconsin Administrative Code Chapter NR 605.08(2)-(5). The four characteristics are:

□ Ignitability

- ◆ A liquid waste with a flash point less than 140 F; the flash point is the temperature at which
- ◆ the vapor above the liquid will ignite when a flame is introduced
- ◆ Any waste that is an ignitable compressed gas
- ◆ Any waste material that can cause fire through friction, absorption of moisture or spontaneous chemical changes

□ Corrosivity

- ◆ An aqueous (water-containing) waste with a pH less than or equal to 2.0
- ◆ An aqueous (water-containing) waste with a pH greater than or equal to 12.5
- ◆ A liquid waste that corrodes plain carbon steel at a rate greater than .25 inch per year (6.35 mm/yr)

□ Reactivity

A waste that:

- ◆ Is normally unstable and readily undergoes violent changes without detonating
 - ◆ Reacts violently with water
 - ◆ Forms potentially explosive mixtures with water
 - ◆ Generates toxic gases or fumes when mixed with water
 - ◆ Is a cyanide or sulfide that can generate toxic gases, vapors or fumes
 - ◆ Is capable of detonation or explosive reactions under certain conditions
- Is a forbidden, Class A or Class B explosive



■ Toxicity

This characteristic is based on the amount of certain heavy metals, pesticides, semi-volatile and volatile organic compounds of hazardous waste that can be extracted from a laboratory sample of the waste. The laboratory test used to determine this characteristic is called the Toxicity Characteristic Leaching Procedure (TCLP).

The heavy metals, pesticides, and organics with maximum concentration regulatory levels are contained in Table I of Wisconsin Administrative Code s. NR 605.08(5) that includes:

Contaminant	Regulatory Level (mg/L)	Contaminant	Regulatory Level (mg/L)
Metals			
arsenic	5.0	barium	100.0
cadmium	1.0	chromium	5.0
lead	5.0	mercury	0.2
selenium	1.0	silver	5.0
Pesticides			
chlordane	0.03	2,4-D	10.0
endrin	0.02	heptachlor (and its epoxide)	0.008
lindane	0.4	methoxychlor	10.0
toxaphene	0.5	2,4,5-TP (silvex)	1.0
Semi-volatiles			
o-cresol	200.0	m-cresol	200.0
p-cresol	200.0	cresol	200.0
1,4-dichlorobenzene	7.5	2,4-dinitrotoluene	0.13
hexachlorobenzene	0.13	hexachlorobutadiene	0.5
hexachloroethane	3.0	nitrobenzene	2.0
pentachlorophenol	100.0	pyridine	5.0
2,4,5-trichlorophenol	400.0	2,4,6-trichlorophenol	2.0
Volatiles			
benzene	0.5	carbon tetrachloride	0.5
chlorobenzene	100.0	chloroform	6.0
1,2-dichloroethane	0.5	1,1-dichloroethylene	0.7
methyl ethyl ketone	200.0	tetrachloroethylene	0.7
trichloroethylene	0.5	vinyl chloride	0.2

If you're not sure whether your waste exhibits any of the hazardous waste characteristics, contact a local certified testing laboratory. A list of certified laboratories and their phone numbers can be obtained from DNR's Integrated Science Service Bureau 608/267-5230. Make sure the laboratory any required test methods. Required test methods are listed in Chapter 605 Wisconsin Administrative Code and the specific testing procedures can be obtained from:

- ◆ The American Society for Testing and Materials; 100 Barr harbor Dr., West Conshohocken, PA, 19428-2959 (phone: 610/832-9585; internet: <http://www.astm.org>)
- ◆ National Technical Information Service; U.S. Department of Commerce; 5285 Port Royal Road, Springfield, Virginia 22161; (phone: 703/487-4650; internet: <http://www.ntis.gov>) [Test Methods for Evaluating Solid Waste, Physical/Chemical; EPA Publication SW-849]
- ◆ Superintendent of Documents, U.S. Government Printing Office, P.O. Box 371954, Pittsburgh, PA 15250-7954, (phone: 202/512-1800; internet: http://www.access.gpo.gov/su_docs) ["Test Methods for Evaluating Solid Waste, Physical/Chemical/Methods" GPO Document No. 955-001-00000-1]



Mixtures

Non-hazardous waste mixed with listed hazardous waste is considered a hazardous waste. Non-hazardous waste mixed with characteristic hazardous waste is considered a hazardous waste if it displays any hazardous waste characteristics. However, if adding a non-hazardous waste causes the hazardous waste to no longer display any hazardous waste characteristics, then the mixture is no longer a hazardous waste. Please note that this activity would likely be considered hazardous waste treatment and a license may be required prior to mixing any waste. Contact your regional DNR Waste Management Program for more information.

Containers

Containers formerly used to store hazardous waste are not themselves hazardous waste if they are empty. To be empty, the containers generally must have:

- ◆ less than one inch of waste remaining,
- ◆ or less than 3 percent by weight of the original substance remaining in the container if the container holds less than or equal to 110 gallons, or less than 0.3 percent if the container holds more than 110 gallons.



Questions?

Call your DNR Regional waste management program (see attached map) if you have additional questions or consult the NR 600 series, Wisconsin Administrative Code. You may also want to check on DNR's web site at <http://www.dnr.state.wi.us> or contact your regional waste management program or DNR's Bureau of Cooperative Environmental Assistance at 608/267-9700 for a list of other publications that might be of interest. Copies of Wisconsin statutes and administrative rules can be purchased from Wisconsin Department of Administration, Document Sales and Distribution, P.O. Box 7840, Madison, WI 53707-7840 or call 608/266-3358. Wisconsin State statutes and some administrative rules are also on the Revisor of Statutes Bureau's world wide web site: <http://www.legis.state.wi.us/rsb/stats.html>.

Disclaimer: *This fact sheet is not intended as a substitute for the statutes and rules that apply. Rather, it is a brief summary of the topic. Please consult Wisconsin's statutes and administrative rules for detailed information.*

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